Bicycle/Pedestrian Accommodation Feasibility Study

S.P. 8580-149

Interstate 90 Mississippi River Bridge and Interchange Project

December 22, 11

Contents

I. Executive Summary

This feasibility study has been undertaken to review potential bicycle and pedestrian trail alternatives for the Dresbach Bridge, such that a future trail system along the I-90 corridor is not precluded from crossing the Mississippi River.

This study is intended to inform and provide a recommendation pursuant to the relevant Bicycle and Pedestrian Accommodation section(s) in the Dresbach Bridge Environmental Assessment.

This study finds that the suspended trail option (Option 3) is the most feasible and flexible option based on the potential and uncertainty with future trail development, and hereby recommends that structural connections be included in the current project to not preclude future trail system development.

II. Background

In 2007, the Minnesota Department of Transportation (MnDOT) initiated a preliminary engineering study for the replacement of Bridge No. 9320 on Interstate 90 (I-90) over the Mississippi River, from the south intersection of USH 14/61 and I-90 in Minnesota, easterly to a point at the west abutments of the Round Lake bridges (B-32-46/47). Roadway and access improvements were also studied to compliment the proposed bridge replacement.

Representatives from stakeholder groups, including the Wisconsin Department of Transportation (WisDOT), Federal Highway Administration- Minnesota Division (FHWA-MN), and the La Crosse Area Planning Committee (LAPC), participated in the preliminary engineering phase of the project between 2008 and early 2010, which included two public information meetings and several Technical Advisory Committee (TAC) meetings and Project Advisory Committee (PAC) meetings. By February 2010, the study team identified a preferred bridge type and interchange concept and completed the initial Level I Geometric Layout and Bridge Type Selection Report of Findings. The preferred alternative was carried forward into the draft Environmental Assessment (EA) document and into final design.

In conjunction with roadway and bridge improvements, the preliminary engineering study also identified key bicycle and pedestrian accommodations and improvements. Provisions for bicycle/pedestrian accommodations were primarily in the north-south direction along USH 14/61 (TH61), allowing for continuity of the Mississippi River Trail (MRT) on the Minnesota side, through the I-90/TH61 interchange area. The North-South bicycle and pedestrian accommodations proposed are consistent with LAPC bicycle planning efforts, as described in the 2035 Coulee Regional Bicycle Plan. The Coulee Regional Bicycle Plan is part of the LAPC's long-range plan.

During initial project development, the MnDOT Bicycle and Pedestrian section recommended evaluation of an accommodation on the new Dresbach river crossing. However, when weighing all of the project considerations, including correspondence from LAPC dated March 2008 (Appendix B), it was concluded that this provision would not be included in the project at the time. In May 2010, after project development was well underway, the current version of the LAPC Bicycle Plan (which added the provision that capacity for a future bicycle/pedestrian option be included in the design of the Dresbach river bridge) was adopted by the LAPC Policy Board via resolution 5-2010. By the time the revised plan was adopted, the draft level I Geometric Layout and Preliminary Bridge plans were substantially complete. The feasibility of providing a pedestrian/bicycle trail accommodation – or possibly just inserting fittings or strengthening the design of the bridge to accommodate a future bicycle/pedestrian facility on either of the new Dresbach bridges across the Mississippi River -- was again discussed among MnDOT District 6, the MnDOT Bridge Office and FHWA. This discussion considered review of previous assessments as well as new information. A number of concerns, including but not limited to the combined expense, right-of-way and environmental considerations – along with the local bicycle plan's more detailed plans for the pedestrian/bicycle route at the US 61 river crossing between Minnesota and Wisconsin, a few miles to the south of I-90 – ultimately resulted in re-confirmation of the decision to not provide for the trail accommodation at the I-90 Dresbach bridge crossing. The rationale for this decision was outlined in a January 2011 letter to the LAPC (Appendix B).

Feedback from the LAPC Policy Board and others, including a resolution dated May 18, 2011, indicated that there was a continued, strong regional desire for bike/pedestrian accommodations on the proposed Dresbach bridge. Additionally, the LAPC Policy Board and a local bike advocacy group also raised concerns with the decision-making process on this issue.

In July, 2011, representatives from the LAPC, city of La Crosse and a local bicycle advocacy group met with FHWA-MN to request a review of the decision-making process for the preferred alternative, asserting that there was an inadequate amount of public engagement prior to reaching a recommendation not to incorporate the capacity for future bicycle/pedestrian accommodations on the proposed river bridge.

III. Purpose of Report

This Feasibility Study was undertaken in response to LAPC and bike advocacy concerns and to address the May 2010 addition of language in the LAPC's 2035 Coulee Regional Bicycle Plan indicating the recommendation to "…design the capacity for bicycle and pedestrian accommodations into all projects within the I-90 corridor between the Minnesota MRT and US53/STH35 (exit 3), including the Dresbach bridge…".

This document intends to achieve the following objectives: 1.) to document trail accommodation alternatives studied for the river crossing and beyond; 2.) to document feedback from Federal, State, and local agencies that may be required to issue permits or provide funding for a potential bike/pedestrian facility, whether as part of the current project or separate, future projects; 3.) to provide an analysis of studied trail options considering technical and regulatory findings and , 4.) to provide a means of communicating a recommendation regarding the feasibility and preferred alternative for bicycle/pedestrian accommodations on the Dresbach Bridge and carrying this recommendation forward into the Environmental Assessment for the project.

IV. Bicycle/Pedestrian Accommodation Laws, Regulation, and Policies

A review of current laws and policies was undertaken as an initial step in this study. Accommodation of bicycle and pedestrian facilities into transportation projects is guided by several Federal and State-specific laws and policies. Below is a listing of applicable Federal and State (WI and MN) laws and policies, followed by a discussion specific to the Dresbach project. References or copies of each law, regulation, or policy are included in Appendix C. Below is a summary of relevant laws and policies:

Federal Regulations/Policies

1. The March 2010 U.S. Department of Transportation (USDOT) Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations states that the USDOT "is to incorporate safe and convenient walking and bicycling facilities into transportation projects." In addition, the USDOT "encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths."

   The review found that very few statutes, regulations, or policy, and guidance memoranda contain unconditional requirements for bike/pedestrian accommodation on Federal-aid construction projects. References having "shall", "must", or "will" requirements, and their applicability to the Dresbach bridge replacement project are explored in further detail.

2. 23 USC 217 Bicycle Transportation and Pedestrian Walkways:

Subsections of this regulation that are relevant to the river bridge accommodation issue are sections (e) and (i).

(e) Bridges. This section indicates that accommodation can be made with Federal participation if bicycles are permitted to operate at each end and if the accommodation can be made at a reasonable cost.

Currently, bicycles are not permitted to operate on this portion of I-90. In order to permit bicycle and pedestrians to operate on the Dresbach Bridge, the facility needs to be barrier separated such that non-motorized users are not within the access control limits. Conversely, a project sponsor could propose that current state laws prohibiting non-motorized use of the Dresbach Bridge within the access control limits be changed to allow for this use.

(i.) Transportation Purpose. This section indicates that a bicycle project must be carried out principally for transportation purposes rather than recreational purposes.

It is unclear if the 2035 Coulee Regional Plan recommending an accommodation on the Dresbach Bridge is intended principally for transportation purposes or recreational purposes. Feedback received from stakeholder representatives indicates that part of the consideration for bicycle/pedestrian facilities is for recreational purposes (i.e., viewing the Refuge and river, completing a recreational trail loop, etc.). However, this does not preclude the use of federal transportation funds.

3. **Title 23 Code of Federal Regulations (CFR) Part 652 - Pedestrian and Bicycle Accommodations and Projects:**

§652.5 is more stringent than the March 2010 USDOT policy and 23 USC 217, by limiting the requirement for bridge deck replacement or rehabilitation to highways without full control of access.

I-90 is an Interstate freeway facility that currently features full access control. See also discussion in section 2(e) above.

§652.7 requires that only bike paths used for transportation purposes are eligible for Federal-aid funding.

23 CFR 652.7 provides that if 5 conditions are met, the bike path <u>may</u> be authorized, but it <u>does not require</u> authorization of the project. For the Dresbach project, conditions (1), (2) and (5) are met through the course of project development. Condition (3) requires that a public agency has formally agreed to operation and maintenance of the facility. Condition (4), "The estimated cost of the project is consistent with the anticipated benefits to the community" can be addressed by this feasibility study and assist FHWA in evaluating this condition.

4. **October 22, 2008 FHWA Guidance – Bicycle and Pedestrian Provisions of Federal Transportation Legislation:**

   States that safe accommodation of non-motorized users shall be considered during the planning, development, and construction of all Federal-aid transportation projects and programs but does not require accommodation in every transportation project.

   "Bicycle and pedestrian projects are broadly eligible for most Federal surface transportation funding categories. Eligibility does not, however, guarantee that bicycle and pedestrian projects, plans, and programs will be funded -- States and MPOs retain broad control over project selection procedures and choices and can set their own priorities for funding".

5. **FHWA Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach; FHWA Supplementary Design Guidance for Bicycle and Pedestrian Projects.**

   The referenced guidance states that **"**1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

   1. bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
   2. the cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project. [Note the supplementary design guidance clarifies 'This 20 percent figure should be used in an advisory rather than an absolute sense.']
   3. where sparsity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires 'all construction of new public streets' to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints."

For condition (1), this can be satisfied by providing a facility that is physically separated by a barrier such that non-motorized users are not operating within the freeway access control limits. Condition (2) thresholds are not exceeded when considering the accommodation on the bridge alone relative to the current project, or for the entire corridor relative to current and planned projects by MnDOT and WisDOT. For condition (3), it is difficult to determine if there is an absence of need due to the difficulty in estimating potential use covered in Section V of this report. There appears to be support from the LAPC for a trail system on I-90 as evidenced by the amendment to the Coulee Regional Bicycle Plan adopted May 19, 2010.

Minnesota Laws and Statutes

The I-90 Dresbach bridge will touch down in Minnesota in the area of Dresbach and La Crescent Townships. Minnesota Statute §165.14 states that all bridge projects funded under this section (i.e. use of Chapter 152 funds) in 2012 or later must include bicycle and pedestrian accommodations if both sides of the bridge are located in a city or the bridge links a pedestrian way, shared-use path, trail, or scenic bikeway. In this case, neither side of the bridge touches down in a city.

In Minnesota, the bridge is located in a township and in Wisconsin, it is located in the Upper Mississippi National Wildlife Refuge. The bridge itself does not currently link a pedestrian way, shared-use path, trail, or bikeway at both ends. The Mississippi River Trail (MRT) along Old 61 in Minnesota, however, runs north/south, but does not cross the existing I-90 bridge. There is no bike or pedestrian way located where the bridge ends in the Refuge in Wisconsin. Therefore, the Dresbach Bridge project does not meet the criteria that requires bike and pedestrian accommodations under this statute.

Additionally, the existing I-90 bridge which connects Minnesota to Wisconsin does not have bicycle or pedestrian facilities. Therefore, Minnesota Statute §160.264, which requires the replacement of bikeways and pedestrian ways, does not apply.

Minnesota Bicycle/Pedestrian Policy Considerations

There is a strong policy statement in support of bikeways. In Minnesota Statute §174.75, Complete Streets, requires ("shall") the transportation commissioner to implement a complete streets policy, which by definition includes considering "…the needs of motorists, pedestrians,…bicyclists…in a manner that is sensitive to the local context…" Minnesota Statute §160.265 requires ("shall") the MnDOT commissioner to establish a program for state bikeways in coordination with other state agencies and local governmental units. Also, in §174.01, the transportation goals for the state include providing "multimodal and intermodal transportation facilities; and maximizing the long-term benefits received for each state transportation investment."

Wisconsin State Laws

In Wisconsin, bicycle and pedestrian accommodations are considered on all projects. The current 2035 Coulee Regional Bicycle Plan calls for designing the capacity for future bicycle/pedestrian accommodations on the I-90 bridge and the entire I-90 corridor to exit 3. However, no bicycle/pedestrian accommodations are shown on the Connections 2030: Wisconsin's long-range transportation plan or the Upper Mississippi River National Wildlife and Fish Refuge Comprehensive Conservation Plan.

Wisconsin Trans. Rule 75 lists five conditions that would not require bike and pedestrian facilities to be incorporated into a Wisconsin-sponsored project:

Trans 75.02 When bikeways and sidewalks are required.

(1) Except as provided in this chapter, the authority shall include bikeways and sidewalks in all new highway construction and reconstruction projects funded in whole or in part from state funds or federal funds appropriated under s. 20.395 or 20.866, Stats.

(5) Notwithstanding sub. (1), bikeways and sidewalks are not required to be included in any highway construction or reconstruction project that is any of the following:

(a) Has a program level scoping document consistent with life cycle 11 of the department's Facilities Development Manual or, for projects undertaken by a local unit of government, a similar document as determined by the department, in place as of January 1, 2011.

This project is MNDOT led and therefore WisDOT project IDs do not progress through the normal life cycle stages. However work on this project began in 2008 which would have been WisDOT life cycle 12. The start of design was well before the January 1, 2011 date, which leaves in question how TRANS 75 would apply in this case.

Notwithstanding the aforementioned, further discussion on TRANS 75 is included below:

Trans 75.03 Bicycles or pedestrians prohibited.

(1) Section Trans 75.02 does not require bikeways or sidewalks to be included on any highway on which bicycles or pedestrians are prohibited by any of the following:

Order, ordinance or resolution under s. 349.105, Statutes, regarding use of a freeway or expressway.

The project is on the interstate where pedestrians and bicyclists are prohibited. These corridors can be investigated for use if there are traffic barriers for bikes and pedestrians and no other parallel routes.

(2) If bicycles or pedestrians, but not both, are prohibited from using the highway, the project shall include either a bikeway or sidewalk, as appropriate, to serve the bicycles or pedestrians that are allowed to use the highway. A path may be considered along a controlled access highway, as defined in s. 990.01 (5r), Stats., having a speed limit of 45 miles per hour or higher where bicyclists and pedestrians are not allowed to use the roadway.

History: CR 10−082: cr. Register December 2010 No. 660, eff. 1−1−11.

Trans 75.04 Excessively disproportionate cost.

WHEN FACILITIES ARE NOT REQUIRED. Notwithstanding s. Trans 75.02, bikeways and sidewalks are not required on any highway on which the cost of establishing bikeways or sidewalks would be excessively disproportionate to the need or probable use of the bikeways or sidewalks. Cost is excessively disproportionate to the need or probable use of the bikeways or sidewalks if it exceeds 20 percent of the estimated total project cost.

For the Wisconsin segments (from the end of the Dresbach Bridge to the USH 53/STH 35 Interchange at exit 3) the preliminary estimate for adding bicycle and pedestrian facilities within the Interstate corridor ranges from $17 to $27 million, not including right of way costs, engineering, and mitigation costs. A WisDOT pavement and bridge replacement project on this same section (not expected to occur for another 25-30 years) is estimated to be in the range of $42 million. This would put the stretch from the end of the Dresbach Bridge to the USH 53/STH35 at exit 3interchange over the 20% threshold. However, this does not include the Dresbach Bridge section. See also discussion in section (5) of the Federal Regulations/Policies Section on pg.7.

Trans 75.05 Constrained environments.

(1) Notwithstanding s. Trans 75.02 and subject to subs. (3) and (4), bikeways and sidewalks are not required in a constrained environment if establishing them would have excessive negative impacts.

(2) Impacts are considered excessively negative if any of the following applies:
(c) The environmental documentation process shows that establishing all of the facilities described in sub. (1) (a), (b), or (c) would result in loss or degradation of natural resources, historical or archaeological sites.

No matter the location of the path on the Wisconsin side and even with extensive use of retaining walls, the proposed shared use path will impact the Upper Mississippi Wildlife Refuge. This is a highly sensitive area that is protected by federal law and with oversight by the United State Fish and Wildlife Service (USFWS). In addition to being a wildlife refuge, the area is also a high quality forested wetland. Wetland impacts are estimated to be 1.5-6.4 acres.

(5) If real estate is or will be acquired within the constrained environment for a travel lane, the authority shall consider whether the area remains a constrained environment or whether additional real estate could be acquired for purposes of a bikeway or sidewalk without generating excessive negative impacts.

See discussion in section **(2)** *above.*

Findings

Based on a review of relevant Federal and State laws regarding bicycle/pedestrian accommodations on the Dresbach Bridge, it appears that there is no legal requirement that an accommodation must be made. However, there is indication in the laws and policies that due consideration of such accommodations are strongly encouraged and that there is sufficient latitude in the law and policies that allow for findings

based on project-specific parameters. Furthermore, the analysis concludes that there is an opportunity to include provisions on the bridge that doesn't preclude a future accommodation, provided that certain conditions are met (may also include project-specific parameters based on environmental constraints).

Four conditions below are apparent from this review that should be addressed if a bicycle/pedestrian accommodation is made on the Dresbach Bridge (and for non-bridge trail segments that are part of a larger, future trail project):

1. A public agency is required to assume responsibility for operations and maintenance of the facility in order to be eligible for Federal Funding. This would include the State of Minnesota, State of Wisconsin, and/or any public agency (or agencies) within the MPO. Ultimate responsibility may include multiple agencies. A formal maintenance agreement is likely to be required.

2. A bicycle/pedestrian facility along I-90 -shall be separated by a traffic barrier, such that the non-motorized users are not operating within the freeway access-control limits.

3. The bicycle/pedestrian path must avoid or minimize natural resource impacts.

4. It is unclear if stipulation 3 of the Highway Easement document issued by USFWS in 1964 for elements of I-90 in Wisconsin would permit construction of a bicycle/pedestrian trail. An opinion from the USFWS has been requested specific to this matter. A response has not yet been received.

V. Potential Use of Facility

Bicycle and pedestrian use projections are becoming more advanced every year, but are still evolving. There is no routinely used methodology within MnDOT to estimate the non-motorized use of the alternatives studied. Predicting non-motorized travel for a non-existent facility or incomplete system is very difficult. Furthermore, existing data available for the potential use of the Dresbach Bridge crossing is extremely limited.

On Friday, September 09, 2011 the La Crosse Area Planning Committee (LAPC) conducted bike/pedestrian counts from 7:00 AM to 7:00 PM. These counts were taken at the west end of the Cameron and Cass St. Bridges (USH 14/61) and are summarized below:

Table 1

	Bicyclists		Pedestrians
Feature	WB	EB	WB and EB
Cass Street Bridge	50	11	27
Cameron Street Bridge	21	45	16
Subtotal	71	56	43
Total	127		43

The counts taken above did not classify the bicyclists as commuter or non-commuter (i.e. recreational)

It is difficult to draw an exact comparison to the potential Dresbach Bridge crossing based on counts taken at the Cass Street/Cameron Street location. The Cass Street /Cameron Street crossing links (or has the potential to link) the urban cores of two population centers within the MPO. For the Dresbach Bridge project, the Minnesota side is not within a population center or city limits.

Therefore, the study finds that estimating a projected use for a non-existent facility cannot be made with a reasonable level of confidence at this time.

VI. Alternatives Studied

The current version of the Coulee Regional Bicycle Plan does not indicate a proposed alignment for the I-90 corridor. For this study, a number of possible alternatives that would meet American's with Disabilities Act (ADA) requirements were developed for consideration of accommodating bicycle and pedestrian facilities for the east-west travel directions. The range of alternatives were presented and reviewed with LAPC and bike advocacy representatives.

The western terminus for the alternatives study was chosen to coincide with the Dresbach Travel Information Center (TIC) on the Minnesota side of the Mississippi River. This terminus would allow for connectivity with the North-South (MRT) trail already proposed as part of the preferred roadway and interchange alternative.

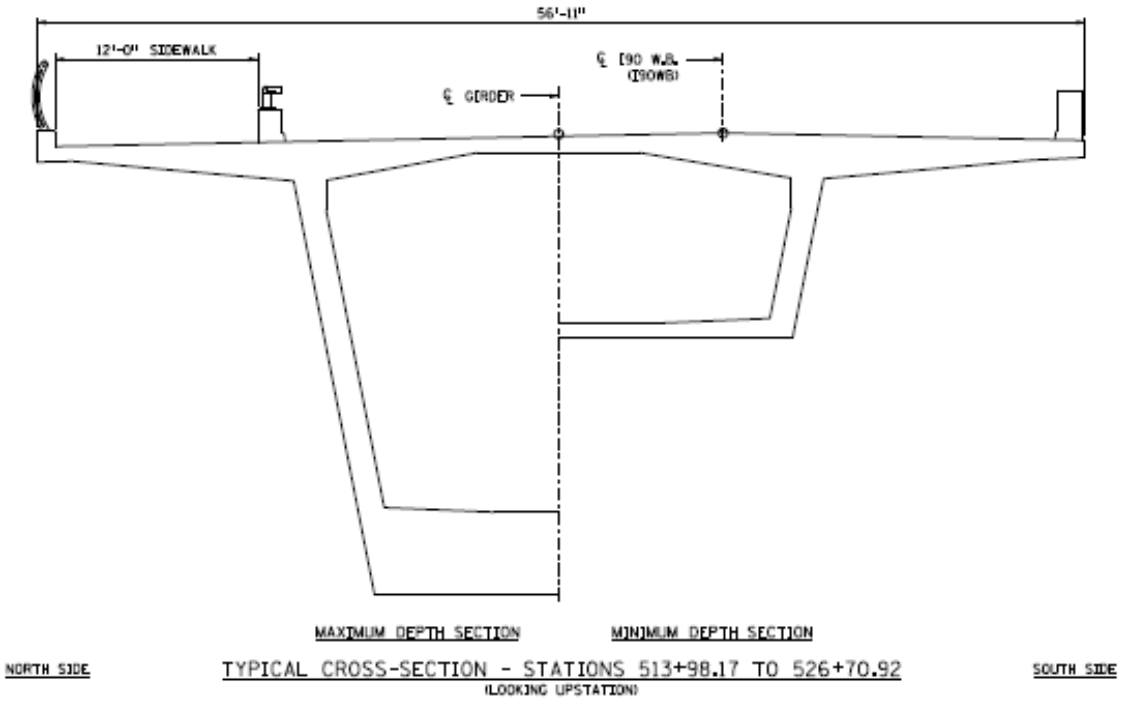
The eastern terminus was chosen at the USH53/STH35 interchange with I-90 at exit 3. Again, connectivity with a local North-South route was a key consideration. An intermediate terminus at the French Slough Rest Area in Wisconsin was also considered in developing study alternatives.

The study alternatives included 4 general cases of alignment options, with two sub-alternatives that allowed for consideration of reduced costs (but with increased environmental impacts). The alternatives are briefly summarized below. Graphics of the alternatives are included in Appendix A.

Option 1a: North side alternative

The north trail alternative crosses the river on the Westbound I-90 (WB) river bridge at deck level and continues easterly along the north side of I-90 to a point in the northwest quadrant of the USH53/STH35 interchange. This alternative does not show connectivity to the French Slough rest area in Wisconsin, although it is not necessarily precluded. The bridge deck of the WB river bridge would include a 12-ft. wide multi-use trail on the upstream side of the bridge separated by appropriate traffic barriers, as illustrated in the figure below:

Fig.1:



In an effort to minimize the potential impacts to the U.S. Fish and Wildlife Refuge and associated wetlands, the path segment in Wisconsin from the east Dresbach bridge abutment to the east end of the

French slough utilizes cast-in-place retaining wall construction to support the trail such as illustrated below:

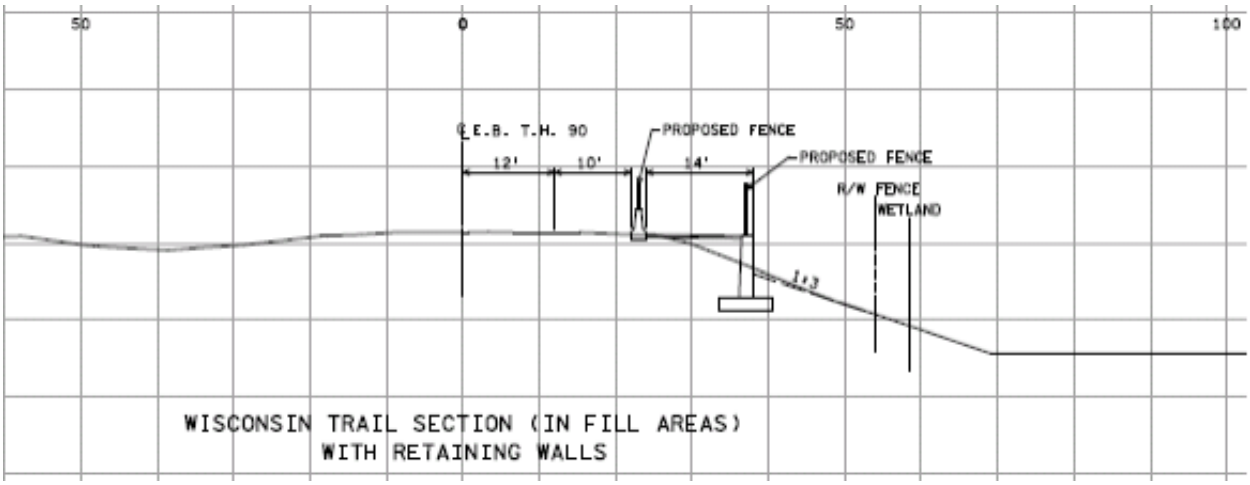


Fig. 2

Option 1b: North side alternative with reduced walls

As noted above, a sub-alternate which reduces retaining wall construction was considered through the refuge area in an effort to minimize on construction costs. The alignments and trail surfacing elements are identical to option 1a. The main difference between the two options is with the embankment (fill) slope limits. The trade-off in reduced walls versus expanded fill slopes will result in additional refuge/wetland impacts being realized. The cost and impact differences are detailed in the MN/WI Bike Trail Connection Option Comparison Matrix (App. A.)

As detailed in the trail graphics for north side trail options, a global stability concern is noted on the Minnesota side of the WB river bridge. The concern is due to the path segment from the West bridge abutment to the Dresbach TIC, which parallels a section of I-90 that has significant geotechnical design challenges due to the in-situ soil conditions and proposed embankment design.

Current global stability analyses have demonstrated that the combination of embankment fill height, slope rate, multi-tiered wall system, in-situ soils, and potential contraction scour against the lower retaining wall can be designed for appropriately with careful consideration of adequate lower wall piling design. The resultant design achieves the required factors of safety against embankment failure.

However, if consideration is given to widening the section of I-90 for a bike path (approx. WB Sta. 505+00 – 510+00 Lt.) , the resulting top of the embankment will shift to the north, thereby causing the retaining wall systems to shift and necessitating a redesign and possibly the need to introduce another retaining wall tier. The entire embankment fill/retaining wall system, and river bridge abutment design would need to be re-analyzed for global stability to ensure that appropriate factors of safety can be achieved.

Option 2a: South side alternative

As in the option 1 cases, the south trail alternative starts from the Dresbach Travel Information Center (TIC), but passes underneath I-90 on the Minnesota side to align with the downstream side of the eastbound (EB) river bridge. The deck of the EB bridge would accommodate a 12-ft. trail; however, due to the variable geometry on this side of the bridge due to the northbound NB TH61 to EB I-90 entrance ramp taper, additional complexity regarding accommodation on the structure must be considered in terms of constructability. The south side alternative continues easterly to the French Slough Rest Area and beyond to exit 3, where the trail could interconnect with another north-south trail.

It should be noted that this option could provide for direct connectivity to the French Slough Rest Area , whereas options 1a and 1b would likely not provide or allow for the same ease of connectivity.

Option 2b: South side alternative with reduced walls

Similar to option 1b, an identical trail alignment on the south side with similar trail surfacing dimensions was considered with a standard embankment fill slope in lieu of retaining wall construction. This allows for consideration of reduced wall construction, but would increase the amount of wetland/refuge impact required.

Option 3: Middle trail (suspended path)

A third option considered provides for a suspended path system between the two box-girder river structures. Once clear of the navigation channel, the suspended path system would drop below the mandated navigation clearance and transition onto a separate pier system on the Wisconsin side. The middle trail option would allow for connectivity to either a north trail option or south trail option on either side of the Dresbach river bridge (either of options 1 or 2).

Option 4: Downstream Corridor

In order to fully assess a complete range of options, an alternative that was independent of the Dresbach bridge and existing corridor was considered. A corridor approximately ½-mile downstream of the existing bridge (Appendix A) was discussed with the USFWS and USACE. This new corridor would provide connectivity to the local system on French Island and the MRT. Due to the potential for large Refuge impacts and based on agency discussion, this alternative was dismissed early in the study.

VII. River Bridge Considerations for Alternatives 1-3

In conjunction with the bike/pedestrian path alignments developed (options 1-3), a number of bridge-specific alternatives for accommodation on the river bridge were explored and are briefly summarized below:

Option 1(a/b): Accommodation on WB River Bridge at deck level

As illustrated in the fig. 1 above, the deck-level accommodation would occur on the upstream, or north side, of the WB river bridge and would be integral with the box girder design. The accommodation on this side would be relatively straightforward from a design perspective.

However, the construction of a wider deck would be problematic. The proposed right-of-way width (refuge acquisition needed from USFWS) averages about 30-ft. in width from the edge of the current bridge deck (no bike path included) to the proposed acquisition limits on Island 98. Constructability issues within this narrow strip have been thoroughly investigated for the current design (no trail). Concern was raised regarding the ability to erect pre-stressed beams from a crane within this narrow strip. A crane movement analysis was conducted by Armeni, Inc. in early 2011 and proved that the proposed right-of-way work limits would minimally (barely) meet the constructability needs for this design.

Adding another 12 feet to accommodate a bike path on the WB bridge will consume much of the working space and maintenance width that the proposed acquisition provides; so much so that a crane cannot maneuver within the remaining width. In order to accommodate crane movements in a reasonable manner, and in order to provide a reasonable width for future inspection and maintenance, additional USFWS taking may need to be considered. It is likely that an additional taking will be problematic. The current Memorandum of Understanding with USFWS regarding mitigation may need to be re-negotiated and it is unknown if or when such negotiations would ultimately be successful.

Option 2(a/b): Accommodation on EB River Bridge at deck level

Similar to the WB river bridge, consideration for the accommodation of a bike/pedestrian path was made. However, as noted in the Option 2 discussion, because of the variable geometry and the wide box section width under the current design, considering a potentially wider EB river bridge structure needs to be carefully considered.

Based on input from Figg Engineers, an EB bridge widening would not be an attractive alternative based on design, constructability and economics. The resulting width of the EB river bridge would likely require a 3-web box girder section, which would require a different form traveler system during construction when compared to the WB river bridge, therefore increasing the complexity of construction for the river bridges. Costs would also increase significantly based on the type of separate equipment that

would need to be mobilized for the project. Also, the additional loading associated with the wider box section would likely require larger footings, which may impact cofferdam sizes and temporary navigation clearances.

Option 3: Middle Trail (suspended path) system

As illustrated in Appendix A, this option shows that the trail system is suspended between the two box girder structures, then transitions to a pier support once off the box girder section at pier 4.

The suspended path option would allow for each structure to share the bike/pedestrian path live and dead loads equally, while also providing future flexibility for trail options that may be developed on either side of the river bridge (potentially under future projects). Additionally, the suspended hanger system could be implemented in stages; first, the hanger coupling details could be installed with the current project and secondly, if a future trail system is fully developed and constructed, the trail hangers and deck could be accommodated at a future date.

The middle option does, however, present maintenance and operational challenges, if implemented. Most of the concerns reflect similar items specified in MnDOT's letter to LAPC dated January 21, 2011. Security issues with potential access to critical elements of the bridge have been resolved or mitigated through refinement in concept design.

Concerns arise because the bike path user(s) would be nestled in between two box girders below the deck level and out of sight or reach from above passersby. Although accessibility to trail users would be limited for this stretch, it may be comparable to portions of the trail system adjacent to I-90, where a barrier with fencing will be required, which limits access. It is possible that specific countermeasures could be incorporated through design (i.e. security cameras, lighting, etc.). The pathway will be rated for an H10 loading, so emergency vehicles and light maintenance vehicles will be able to access the path from land-side egress points.

From a visual quality perspective, trail users would be able to view the river corridor or USFWS refuge for approximately 60-70% of the total span length (Units 1 & 2) based on conceptual graphic estimates.

Underwing suspended path system

A suspended trail system underneath the EB or WB river bridge outside wing was also considered to help alleviate concerns regarding view shed limitations when compared to the middle trail suspended option. However, adequate wing length does not exist at all locations in the box-girder section (Unit 1) to accommodate the suspended trail width. The remaining pre-stressed girder section of the bridge (Unit 2) does not include enough deck overhang to allow for a suspended facility. Furthermore, overhead clearance (which is a function of the USCG permit to accommodate commercial navigation) from the trail may be restricted at locations along the box-girder section.

VIII. Costs, Funding and Impacts Comparison

Cost estimates were developed for each of options 1-3, including differing combinations involving the middle (suspended) trail in conjunction with a north or south alternate. Refuge and wetland impacts were roughly estimated based on the assumption that impacts would occur at the current right-of-way fence line outward (away from the roadway centerline). It is possible that actual impacts would be greater once exact refuge boundaries and wetland delineations are established. It should also be noted that trail width dimensions used for the study are standard widths contained in design guidelines and were affirmed by appropriate personnel within MnDOT and WisDOT. Trail width dimensions could be slightly reduced (not preferred) in order to minimize on wetland impacts. However, avoiding wetland impacts entirely by reducing trail dimensions is not likely.

Option 4 costs were not developed as it was considered on a qualitative basis prior to being dismissed. Based on Federal agency discussions, it was apparent that this alternative would be quite problematic from a regulatory perspective. Further consideration of option 4 was terminated based on agency discussion and the likelihood that this option would prove to be not feasible.

Total cost estimates for the options 1-3 range from $24.6 million to $37.4 million (2011 dollars), and do not include costs for right-of-way acquisition, environmental mitigation, design engineering, construction engineering, or future maintenance.

Funding for bicycle/pedestrian accommodations are likely to be multi-jurisdictional based on discussions held during the study period. For the Dresbach bridge alone, funding for an accommodation could be made available as part of the Federal-State funding mix in-place for the project.

For trail segments in Wisconsin, WisDOT has indicated that a potential trail will likely require cost-sharing with a local agency. The exact percentage is not determinate and may vary depending on cost-share policies at the time a larger, future trail project is in development for the Wisconsin segment. To-date, no request for a cost-share agreement with a local agency has been made nor has a local agency indicated a willingness to cost-participate in the current project or a future project.

As stated previously, maintenance of trail facilities may require a multi-agency agreement, specifically for the future Wisconsin segment. WisDOT has indicated that maintenance responsibility will need to be under the jurisdiction of a local agency. To-date, no official request to participate in an agreement has been made, nor has any local agency indicated they are willing to enter into a maintenance agreement.

Regarding potential wetland and refuge impacts, the impacts have been estimated to range from 1.5 acres to 6.4 acres depending on the option. The impact amounts are estimates based on a limited amount of information available. Actual impact values are likely to vary and are dependent on a number of variables, including wetland delineations and trail dimensions proposed during preliminary or final

design. It is unlikely that wetlands and refuge impacts can be avoided entirely within the I-90 corridor for future trail segments in Wisconsin.

Further details are provided in the MN/WI Bike Trail Cost and Impact Comparison Matrix (App. A).

IX. Federal Resource Agency Review

On September 16, 2011, MnDOT staff presented the range of alternatives (Appendix A) under study to USFWS and USACE staff and requested that each agency review and provide written feedback regarding the options.

On September 29, 2011, MnDOT staff met with LAPC and local bike advocacy representatives to present the alternatives under study and requested that LAPC affirm that the range of alternatives was adequate. On October 11, 2011, LAPC affirmed that the range of alternatives was appropriate.

Written correspondence from USFWS was received on October 13, 2011 and is included in Appendix B. Based on this correspondence, a number of questions and potential concerns are noted and summarized below:

- USFWS requests further information regarding the need for a bike facility along the I-90 right-of-way.
- USFWS notes that none of the alternatives presented avoid the refuge and questions if there is an alternative that avoids refuge impacts.
- Concern was raised about the potential for cumulative impacts relative to the current NEPA document and how they will be addressed.
- USFWS states the current MOU for land exchange does not adequately cover impacts to the refuge for the ultimate trail system and questions how MnDOT would mitigate for the additional Refuge losses (if any).

Written correspondence was also solicited from USACE and received on October 28, 2011 (see Appendix B). Comment highlights are summarized below:

- Wetlands potentially impacted by trail segments in Wisconsin may have high wetland function value and would require a similarly high consideration of avoidance options.
- The potential wetland impacts are not currently supported in the project purpose and need.
- Bridge design to accommodate a future trail does not presume authorization for future wetland impacts for future trail construction

- In order to more fully consider the sequencing of impacts, USACE will require documentation of laws/regulations requiring the consideration or selection of certain alternatives, anticipated usage of the trail to support the potential wetland impacts, a precise purpose and need statement, and more definitive types and amounts of wetland impacts.

X. Findings and Conclusions

The study findings show that there appears to be no explicit legal requirement that an accommodation be made specifically on the Dresbach bridge. However, in light of current policy that strongly encourages incorporation of these facilities, a closer examination of opportunities and challenges associated with bicycle/pedestrian accommodations was undertaken.

The study considered a host of different issues, including current bicycle and pedestrian plans completed by LAPC, potential environmental impacts, costs, constructability issues, and funding. Each of the alternatives considered in this Study has benefits and challenges associated with them. Equally important in the study findings is the amount of uncertainty that remains for the Wisconsin trail segment under consideration.

The exact timing for potential trail implementation east of the Dresbach bridge is uncertain, given that : 1) it will be approximately 25-30 years before WisDOT would need to do major bridge reconstruction that could lead to possible trail accommodation, 2) there is currently no funding identified in state or local transportation plans, and 3.) it is uncertain if a local agency will agree to perform maintenance of future Wisconsin trail segments.

There are potential environmental impacts to wetlands and the Refuge that could result from trail corridor construction. Input received to date from USACE and USFWS staff -- plus the current Refuge easement restrictions – appear to indicate that additional, more detailed study will be required to determine if there are any regulatory 'fatal flaws' with each of the alternatives. Given this uncertainty, the ultimate ('permit-able') corridor location, if any, for alternatives requiring additional right-of-way and project impact area (e.g., north or south of I-90 lanes) cannot be determined at this time.

Based on these findings, current planning efforts, and a desire to accommodate the capacity for a future trail system, this Study recommends that the Middle alternative (Option 3), providing structural connections for a future suspended path on the bridge structure, be included in the Dresbach Bridge project.

This recommendation provides the maximum flexibility for accommodation of a future I-90 trail given that the location of the off-bridge segments (especially in Wisconsin) is not currently known and not likely to be known in the foreseeable future, given the lack of preferred trail alignment and lack of construction funding. It provides for the future trail accommodation while minimizing risk to the taxpayer and without committing extensive investment in structural accommodation now, for a facility where future construction is uncertain. Furthermore, Option 3 does not predetermine the outcome of future NEPA processes. In conclusion, Option 3 (middle option) is recommended since it provides the best balance and flexible approach to not precluding a future trail accommodation, for the reasons identified above and throughout this study.